Testing a New Hybrid Coordinate Ocean circulation Model Based on POP

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The POP ocean circulation model developed at Los Alamos is one of the most widely used circulation models at the present time both for ocean-only simulations at very high resolution, and as one component of a coupled ocean-atmosphere climate models. HYPOP is an effort to generalize POP to include nearly isopycnal coordinates at lower levels in the ocean, while retaining pressure coordinates near the ocean surface. The aim is to improve the simulation of overflows and deep-water formation, which are very important in decades to century climatic time-scales. The proposed work at Princeton is aimed at testing new features of HYPOP, which is being designed at the Los Alamos National Laboratory. Testing will include the simulation of topographic Rossby waves with known analytic solutions, to a hierarchy of overflow experiments, which are currently being proposed by the international DOME experiment. These experiments will form a testbed, which will allow the performance of new developments in HYPOP to be compared with other well-known models in use at laboratories in the U.S. and abroad.

DOE Sponsored Publications

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